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PATRICK MANU

Enhancing Learning and Learning Styles of Students

Y. SHARATH CHANDRA

Independent India — Achievements in Science and Technology

K. PERUMALSAMY

Role of Library in Agricultural Information System

DIPTI OZA & ANITA D. SHETTY

Innovations Practiced in Continuous Comprehensive Evaluation

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IN THIS ISSUE

Enhancing Learning and Learning Styles of Students 1
Independent India — Achievements in Science and Technology 4
Role of Library in Agricultural Information System 6
Innovations Practiced in Continuous Comprehensive Education 10
Convocation
Nagpur University, Nagpur 18
Campus News
Higher Education and Society 21
Millennium Youth Festival 22
UP to Revamp Higher Education 23
AIU News
Our New President 27
News from UGC
Countrywide Classroom Programme 28
Book Review 29
Theses of the Month 30
Classified Advertisements 32

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Enhancing Learning and Learning Styles of Students

Patrick Manu*

Introduction

According to Morgan (1977) learning is any relatively permanent change in behaviour which occurs as a result of practice or experience. This definition has three important elements :

(a) Learning is a change in behaviour. It can be a change for better or for worse.

(b) It is a change that takes place through practice or experience. This nullifies the fact that changes due to growth, maturation or injury are learning. Continual repetition of a task brings about learning.

(c) The change must be relatively permanent. This means that the change brought about by learning must last for fairly a long time.

Garrett (1990) defines learning as that process which, as a result of training and experience, leads to next or changed responses. It is the process by which we organise our responses into new behaviours. This means that learning is a universal human experience. The child learns and more so an adult learns.

However what we learn depends upon our mental age and also our chronological age. It is also greatly influenced by the environment in which we find ourselves. This demand for changes and modifications in our behaviours and our preparedness to make such changes continue throughout life is, *per se*, learning.

Demystifying Learning

To help students to learn, the teacher has much to do. The most important thing the teacher must consider is to first demystify the learning process. Many a time children consider learning as something scary and difficult to go through. This kind of thinking or notion at times discourages the child. To demystify the learning process, six concepts are suggested :

1. It is important to begin the school year by having students develop a functional definition of learning.
2. It is important also to teach the students the basic concepts of motivation, especially how they can rely on intrinsic motivation rather than extrinsic motivation.
3. Endeavour to teach the concept that individuals have different learning strength; that no two students are completely alike academically or otherwise.
4. It is also important that a student learns about the various learning styles and be conversant with his/her own style.
5. Help students to understand the various levels of learning and why they are being asked to study various materials. This motivates students.

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6. Help students to understand how they can benefit from studying effectively.

Helping Students to Discover their Academic Needs

This being done, the teacher should also help the students to discover their academic needs. The students should be made to :

a. Understand and value the learning goals.

b. Understand the learning process.

c. Be actively involved in the learning process and relate subject matter to their own lives.

d. Take responsibility for their own learning by following their own interests and setting goals.

e. Experience success.

f. Receive realistic and immediate feedback that enhances self-efficacy.

g. Receive appropriate rewards for performance gains.

h. See learning modelled by; adults as an exciting and rewarding activity.

i. Experience a safe, well organised learning environment.

j. Have time to integrate learning.

k. Receive instruction matched to their learning style.

l. Be involved in self-evaluating one's learning and effort.

Incorporating Students Interest in Learning

Helping students to discover their academic needs alone does not, *per se*, help them to learn with enthusiasm. The teacher should also be actively involved in the learning process. He should incorporate students' interests by

a. Helping the student build a list of things they would like to learn about in each major curriculum area to which they will be exposed.

b. Having the students list questions they have about topics that will be covered when introducing a unit.

c. Teaching students how to order films on topics that interest them.

d. Teaching them how to invite guest speakers (including parents) to discuss topics of their interest.

e. Creating a unit on biographies.

f. Allowing students to choose special topics they would like to study.

g. Having students write about what they already know about the topic for discussion.

h. Allowing students to develop their own spelling list.

Adjusting Environmental Factors to Meet Students' Needs

The teacher must also endeavour to adjust environmental factors to meet students' learning needs. The following methods can be used :

a. When presenting material, use visual displays, such as writing on the overhead projector, to assist students who are visual learners.

b. Allow students to select where they will sit.

c. Permit students to choose where they wish to study.

d. Be sensitive to individual student needs to block out sound or visual distractions.

e. Make healthy snacks available to students or allow them to bring their own.

f. Provide opportunities for students to select whether they will work alone, in pairs, or with a small group.

g. Provide adequate structure or both short term and long term range assignments.

h. Give students instructions in study skills.

i. Provide learning activities that require the use of both sides of the brain.

j. Employ individual goal setting, self monitoring and contracts.

k. Realize that some students require more frequent breaks than do others.

l. Consider that students doing poorly in a subject might perform better if their subjects were taught at a different time of day.

m. Increase the length of time you want before calling on a student to answer a question.

n. Develop learning centres that incorporate a variety of learning modalities.

Enhancing the Learning Styles

Having discussed how a teacher can enhance the learning process of students, it is also important at this juncture to examine the learning styles of students and how the teacher effectively deals with the different styles of the student.

Characteristics of Successful Learners

Before considering the learning styles of students, it will be noteworthy to examine the characteristics of a successful learner as depicted in figure 1.

Looks Like	Sounds Like
1. Eyes focused on speaker	1. Gives encouragement
2. Concentrates on their work	2. Uses appropriate voice level
3 Well organised	3. Asks questions
4. Cooperates with others	4. Asks for help when needed
5. Follows classroom rules and procedures	5. Shares ideas with others
6. Sets goals	6. Comments are on task
7. Stays calm when having a problem	7. Is courteous to others
8 Uses time wisely	8. Uses problem solving
9. Learns from mistakes	
10. Shares materials	
11 Does not give up	

Figure 1 : Characteristics of a Successful Learner

Figure 1 shows the characteristics of a successful learner. These characteristics are exhibited by the students in the classroom and outside the classroom. The teacher should know his students as individuals to understand them better.

Learning Styles of Students

Students can be classified into four types on the basis of their learning styles. These include :

A. *Innovative Learner*

The innovative learner seeks meaning. He wants reasons for learning a new material. He needs to be personally involved in the learning process. He desires to work with people and he is highly imaginative. He has good divergent thinking skills and perceives information concretely. However, he processes information reflectively.

For such a learner the teacher is a motivator. The teacher has to motivate him to get involved. The best method to be used for such a student is the discussion method. Other methods of equal importance are the heuristic and the concept attainment methods. In the heuristic method the teacher makes the learner discover things for himself and ask questions if the need arises. In the concept attainment method the teacher prompts the student to think by introducing an issue and asking the learner to think and say his mind about the issue until every fact about the issue is well explored.

B. *Analytic Learner*

The second type of learner is analytic learner, his learning style is analytic style. The analytic learner wants to know the facts. He perceives information abstractly and processes it reflectively. He creates concepts and builds models. He enjoys collecting data and needs to know what experts think. He also admires sequential thinking.

For the analytical learner, the teacher provides information by direct instruction. Probably the best method for the analytic student is the lecture and the question-answer method. The teacher presents all the facts which the learner wishes to know. The analytic learner, after obtaining all the facts, will analyse them and clear all his doubts by asking the teacher some questions.

C. *Common Sense Learner*

The common sense learner need to know how things work. He seeks the usability of situations and things. He enjoys solving problems and desires hand-on-experiences. He wants ideas to be practical and needs to know how things he is asked to do will help in real life. He likes to practice ideas and perceives information abstractly.

To help the common sense learner the teacher must act as a coach. He has to be a guide and explain why things are done the way they are done. He involves the learner in everything he does; and in all situations he gives an immediate feedback. For this type of a learner the teacher can use the demonstration and the experimental methods. Issues should be presented theoretically and practically for a common sense learner to grasp the true meaning of whatever the teacher presents.

D. *Dynamic Learner*

This type of learner needs to use the self discovery method. He takes risks and is flexible. He relishes changes and seeks action. He has the endurance to follow through with plans. He also enjoys the trial and error method. He receives information concretely and processes it actively.

The teacher in this situation becomes a resource. He is an evaluator and serves as a facilitator. He encourages a variety of learning opportunities. He uses a variety of methods when dealing with a dynamic learner. He also gives opportunities for the students to discover and to explore.

(Contd. on page 9)

Independent India — Achievements in Science and Technology

Y. Sharath Chandra*

The whole of science is nothing more than a refinement of everyday thinking, observed Albert Einstein. This is aptly applicable to Indian achievements in science as this very refinement of everyday thinking which was the synergic result of socio economic cultural realities and some times compulsions has contributed to the Indian achievements of science and technology in the post-independence period. In the words of eminent scientist M.S. Swaminathan, the truth that a country that was an importer of food grains, within five decades achieved self sufficiency, speaks volumes of Indian achievements in science and technology after Independence.

At the time of Independence, our scientific and technological infrastructure was neither strong nor organised to meet the needs of this nation. This had resulted in our being technologically dependent on skills and expertise available in other countries during early years of Independence. In the past five decades, an infrastructure and capability largely commensurate with meeting national needs has been created minimising our dependence on other countries. A range of industries from small to the most sophisticated has been established covering wide range of utilities, services and goods. There is now a reservoir of expertise well acquainted with the most modern advances in basic and applied areas that is equipped to make choices between available technologies, to absorb leading new technologies and provide a framework for future national development.

It is the vision of Pandit Nehru that is mainly responsible for the growth of scientific establishments in the first few years of Independent India. These are the Council of Scientific and Industrial Research, Indian Council of Agricultural Research, Indian Council of Medical Research, besides departmental laboratories of various departments, viz., Department of Atomic Energy, Department of Electronics, Department of Space, Department of Biotechnology, Department of Ocean Development, Defence Research and Development Organisation, Ministry of Environment and Forests, Ministry of Non-Conventional Energy Sources and the Ministry of Science and Technology. In addition, there are about 1200 inhouse research and development units in industrial undertakings supporting research in their respective industries. Many Agricultural Universities with their research stations have been set up.

In the past 50 years, the country has made great strides in Atomic Energy, Defence Research, Space Technology, Electronics, Ocean Development and Agriculture including Biotechnology.

The Atomic Energy Commission was established with Dr. Homi J. Bhabha as it's Chairman, within an year of gaining Independence, on 10 August 1948. Over the years, India has become one of the very few countries in the world to have mastered the entire nuclear fuel cycle activities ranging from exploration, mining and fuel fabrication, through design, construction, operation and maintenance of nuclear power stations to fuel reprocessing and radioactive waste management. Competence in life extension of aging reactors has also been evident in the progress made in the coolant channel replacement in the Rajasthan reactor. The Fast Breeder Test Reactor at Kalpakkam has achieved the power level of 10.5 MW and the detailed design of the 500 MW PFBR has been finalized. Above all, the Pokhran II made every Indian proud.

Achievements in defence technology are memorable. Thanks to the wise policies of the government, and the able leadership of Prof. Abdul Kalam and team work. Plans are afoot to introduce the first Light Combat Aircraft (LCA). The country has successfully developed and introduced the third generation anti-tank missile (Prithvi), and a phased array radar system (Rajendra). More sophisticated missiles such as Agni and the Trishul are on the anvil. At present, the defence technology is 30 per cent indigenous and the score will reach 70 per cent by 2008. Defence scientists have contributed much to high altitude research, as our soldiers have to spend lot of time in the high glacier regions of Himalayas. This also contributed to the success story of India at Kargil.

India made a modest beginning in space research in 1963 at Thumba in Kerala. Indian National Satellite

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System (INSAT) is multipurpose system. The meteorological data gathering and its dissemination, along with its collection of remote area meteorological data from unattended platforms, has vastly improved weather forecasting in the country. INSAT has enabled a vast expansion in the Television service. The Indian Remote Sensing (IRS) satellites are the main-stay of National Natural Resources Management System.

India started launch vehicle development in a modest way through SLV-3 (Satellite Launch Vehicle). The capability was further built up through Augmented Satellite Launch Vehicle, ASLV, in 1994, which injected the SROSS satellite into low earth orbit. Today by successful launch India has realised the operational launch vehicle PSLV, capable of launching IRS class satellites into polar synchronous orbit. The development of GSLV is making rapid progress.

Electronics occupies key position in modern science and technology. The production of electronics which was worth about Rs. 15 crore in 1960 has increased to whopping level of about 40,000 crore in 1998-99. Indigenously developed and produced chopper controlled trains are operating commercially. India exported about 10,000 crore worth electronic equipment last year.

The software industry has emerged as one of the fastest growing industries in India. Currently, this industry is worth 4 billion US dollar and is expected to be about 15 billion US dollar by the year 2002. Today globally much sought after software professionals are from India. What else can be an example of marvellous transformation.

Centre for Development of Advanced Computing (C-DAC) has played a flagship role for developng and catalysing the High Performance Computing and Communications technology and applications in India. India has achieved the status of a very few countries in the world who have built a super computer.

India has got more than 8000 km long coastline. In recognition of this reality the Department of Ocean Development was set up in 1981 to promote and coordinate the multifaceted endeavours need to accomplish the task, as well as to develop the new emerging area of Antarctic research and deep seabed mining.

The first Indian Antarctic Research expedition started in 1981 continues over a very wide range of scientific activities. An indigenously designed permanent station 'Maitri' was established. Indian scientists have been making significant contributions to ice ocean atmosphere system in Antarctica and global environment.

India is one of the pioneers in Deep Seabed Exploration. Because of it's path breaking work with special emphasis on the location and sampling of polymetallic nodules, India was recognised as a pioneer investor in 1982. A mine site of 1.5 lakh sq km in the Central Indian Ocean was allocated to India by the Preparatory Commission for the International Seabed Authority in August 1987 to conduct research. This is a clear achievement for Indian science.

Today Biotechnology is the buzz word in ever changing world. In the era of Trade Related Intellectual Property Rights to meet the challenges, recognising the significance of this area, a separate Department of Biotechnology has been established.

Significant results in case of transgenic plants which are now being field tested are available for example tobacco, mustard, cotton, chickpea and rice. A major break through has been in wheat where high frequency reproducable regeneration of plants from several cultivate varieties was achieved and more than 200 plants have been transferred to field conditions at the University of Rajasthan, Jaipur. Cardamon product plan has given 37 per cent yield increase from the tissue cultured plants in the states of Karnataka, Kerala and Tamil Nadu. Three National Gene Banks have been established for the conservation of our rich germ plasm wealth in respect of medicinal and aromatic species. The Department of Biotechnology is the nodal agency for the establishment of a net work of gene banks among G-15 countries. This is a recognition for India's strength in this field.

Eight biopesticides have been developed and their mass production technologies perfected. A total target of 11,700 ha have been covered with biocontrol agents at farmer's level in the fields of cotton, oilseeds, pulses, sugarcane as well as vegetables. Two Biocontrol Production Plants (BCPP) are set up at Madurai and Coimbatore.

Embryo transfer work was done in goats and camel. Embryo sexing was done using bovine specific primers. Vaccines developed for Ranikhet disease in poultry and infectious bovine rhinotrachietis in cattle are commercialised. Cows generated through embryo transfer came into production with a potential of 3000-6000 litres per lactation.

AIDS diagnostics are being made indigenously.

(Contd. on page 9)

Role of Library in Agricultural Information System

K. Perumalsamy*

Introduction

We are living in the "Information Age". Information is a vast dynamic and inexhaustible source that affects all disciplines as well as the lives of all people. Agriculture and technology are no exception. Information in Agriculture is used to support research and development, for the production of foods and services that touch all our lives; and it can be used to improve the quality of life. We are living in knowledge based society in which sophisticated billion rupees industries depend on the production and efficient use of information. Unfortunately we are faced with a crisis — the cost of production and processing of documents is increasing much more rapidly than the budgets and the space for the Libraries to house them. Traditional techniques and old technologies cannot cope with this challenge. Changes must take place if we are to keep pace with the increasing volume of information.

Information in itself has no value. Its value comes from its communication and use. Communication involves transfer of information. Vast stores of information and knowledge are residing in libraries, information analysis centres, computer files, data bases and in the minds of researchers, educators, decision makers, policy designers, and the potential users among public. Computerised information retrieval is widespread and economically viable as evidenced by the volume of machine readable records, databases, search services. The major portion of the currently published literature in Agriculture (and technology) can be identified through computer searches-publically available bibliographic data base. Agriculture provides food, the essential of life. Agricultural research and training on the other hand are the rock foundation of sound agricultural development in any country and the success of this, to a large extent depends on access to information facilities. Thus agricultural documentation and information services are considered to be the important channels for the documentation and distribution of relevant information to all agricultural user groups, including researchers, teachers students etc.

Agricultural User Needs

The role of agricultural information depends on the level of user group served. There are different levels in the flow of information for each group and the role that information plays will be determined by the needs of each distinctive group. As far as agricultural scientists are concerned their academic needs are varied. There are researchers and teachers and even policy makers and planners who have to keep abreast of new developments in agriculture all the time. They are a scientific group, international in scope, and drawing information from various formal and informal sources.

Their main sources of information are research papers published in the Scientific serial literature, conference proceedings and informal communication with colleagues, etc.

The Agricultural Scientist is always looking for information that will help him to do away with repetitive research and to draw from the findings of research conducted else were. He must, therefore, have access to foreign literature and get new ideas from colleagues by attending meetings.

However, although Agricultural Scientists have many sources of information, sometimes differences in circumstances impede the use of results of other research. This is so especially because agricultural research is in the main an applied research and has to take into account the local conditions. Therefore 'tailor made' sort of information is more attractive to researchers than senseless supply of irrelevant information.

Need for the Development

The need for improving agricultural research and training manpower requires no emphasis. Eventually this will increase the number of national agricultural experts whose network will be responsible for communicating much of agricultural information through publications and as direct sources of information in places of work, schools, meeting etc.

The standing of the Scientist is largely based on this published research output. Publication of research results should be given priority. In order to

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give timely information about the results of research activities they can be produced in newsletters, bulletins and report series issued at low cost by using office duplicating machines. Producing them in high quality printed form may cause long delays. Annual reports of research activities should not be delayed due to lack of facilities to produce high quality printed product.

Researchers and educators should be encouraged to write and publish their results in useful packages initially rather than waiting until they warrant a high publication standard.

Participation of researchers and educators at meetings should be encouraged and agricultural scientific societies should play a key role in the publication and exchange of information. Librarians should also be invited at such meetings to collect papers for wider dissemination thereafter, instead of waiting until they are published in proceedings which normally come out much later.

Library and information services must be given higher priority in the planning and management of national agricultural research and training system. Libraries cannot be expected to play their effective role if they continue to receive insufficient funds for the purchase of the needed material.

Adequate budgetary allocations and foreign currencies for book purchases, periodical subscription and foreign document delivery services must be made available to Librarians.

Sharing the resources among libraries through exchange of materials and inter-library loan should be encouraged.

The status of Agricultural Librarians and documentalists must be improved. Agricultural and biological science graduates should also be recruited and trained to become professional information scientists in order to develop effective services. At the same time agricultural scientists should be made aware of the availability of library services and trained to make effective use of them.

Close functional interaction between agricultural information officer or librarian and agricultural scientist is necessary to enable the former to be well informed of the specific problems his scientific client is dealing with in order to supply relevant information.

In view of the scarce resources, (both human and financial), a national library system to coordinate activities and services should be established in India with the aim of improving the agricultural libraries and information services in the country.

Such a system should, among other things serve as a repository of published and unpublished materials and a national clearing house for all agricultural material and covering the functions of a national liaison centre for AGRIS/CARIS.

Indian Agricultural Information Centres should be connected to the international agricultural research community through effective participation in AGRIS and CARIS which are international agriculture Cooperative information systems managed by FAO in Rome.

Recommendations

Large influx of documents has been posing problems to user services so long rendered by the libraries through traditional methods. Early steps may be taken to introduce computerization atleast in the large size libraries like Tamil Nadu Agricultural University and Indian Council of Agricultural Research Libraries, institutes and other Agricultural universities as a remedial measure.

The library authorities should formulate their requirements for computerization of their libraries. Indian Council of Agricultural Research should render financial support to each such library for initiating computer-based library services.

For maximum possible use of the resources of agricultural libraries in the country, a National Agricultural Library and Information Network is essential. The Indian Council of Agricultural Research should appoint a committee to formulate a plan for developing such national network and then take necessary action to implement it at an early date.

The National Agricultural Library is a must for our Nation and should be established at the earliest possible data. Until then Indian Agricultural Research Institute Library may be recognised as the National Agricultural Library for our country.

Programmes of continuing education may be organised in the country for the Library personnel at the national as well as regional levels. Such programmes, besides other items, should include work experience and visits to libraries in India and abroad.

After considering different aspects such as increasing exchange rates of foreign currencies and steep rise in prices of journals and books, atleast 8-10% of the recurring budget of the respective institute/university should be earmarked for documents to be acquired by its library.

Steps have to be taken for developing a system of resource sharing among libraries within a region so as to make the best possible use of their limited financial resources. The proposed National Agricultural Library should serve as the apex library for this purpose at the National level.

The libraries of agricultural universities and Indian Council of Agricultural Research Institutes should establish, if not already established, a reprographic section to provide reprographic services to readers. Indian Council of Agricultural Research should provide funds to the libraries for reprographic equipment.

While recognising the need for the requisite manpower for efficient and effective library services it is recommended that libraries of the agricultural universities/institutes be provided with library staff as per norms for staffing formula recommended by the 'All India Seminar on Agricultural Library and Information Services' held at HPKVR, Palampur in 1983.

To develop better library services and also to make the libraries user-oriented the libraries of Agricultural universities and Indian Council of Agricultural Research Institutes should conduct users' surveys periodically and take steps to meet the users' needs accordingly.

To maximise utilization of library resources the libraries of agricultural universities and Indian Council of Agricultural Research Institutes should take concrete steps to organize user education programmes on regular basis.

Services

The library should

1. Carry out a regular weeding out of stock.
2. Institute a continuous programme of stock editing to ensure that all latest editions are available and that there are no gaps in the collection.
3. Acquire back volumes of journals on microfiche form to save space.
4. Acquire relevant collection of standards and patents.
5. Build up a collection of reprints.
6. Acquire selected audio visual material.
7. Get provision for grants/funds to enable the procurement of new reading materials.

Users' Guide

A general guide to the library is necessary. This should be in the form of a booklet giving all information about the stock, services and staff, details of which members of staff can be approached for which service and if possible, include photographs of the library. This would acquaint the users with all features of the library and help to make its services better used within the campus and better known outside it. Such a guide to the library should be periodically revised and updated to include the newer services or features of stock.

Digests, State of the Art and Trend Reports

In due course, as the demand for information increases, library staff can be trained to prepare suitable 'Digest' of information gathered from various sources, and also state of the Art Report and Trend Reports on particular topics. Since the library receives such large volumes of literature, if the staff prepare such reports, they can activate the use of the primary sources and save the time of the research workers.

Packing of Information

A very important function for information personnel in disciplines such as agriculture or medicine where the information resources are vast and the users vary a great deal in their information needs, is the re-packaging of information to suit the user. Whereas the research worker can read a report on his own, it may be necessary to simplify or translate such material for use by the farmers or extension workers. To what extent such activity can be undertaken by the library will, of course, depend on the staff strength and the degree of collaboration with the Extension Education and Communication Centre staff.

Library Automation

Suggestion for operating computers in the library to facilitate quick functioning in the matters of library technical work and services. In view of the growing frontiers of knowledge collection of technical and scientific information and establishment of data bank may facilitate the work of researchers and various institutions. By using computers proper and regular documentation services can be done by the library.

Professional Development of Staff

To further their professional development they should be encouraged to participate in seminars and conferences and encouraged to produce bibliographical guides for use by the academic staff and students. The library staff should be encouraged to become members of the AALDI. Budget provision should also be made for senior library staff to travel to USA or UK and see first hand the highly developed agricultural information services in these countries. Foreign missions in India have some schemes to help in the programme and funding of such visits.

The Indian Council of Agricultural Research or some other national institution, should set up a Library Advisory Committee which would pay special attention to the development of Agricultural University libraries and initiate and encourage schemes of co-operation among them. Further reviews, especially to evaluate the usefulness or otherwise of any new information services and administrative procedures introduced as a result of this report, and any subsequent ones, should be carried out from time to time. This would ensure the growth of the library and monitor effectively the social relevance of the intellectual output of the university.

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Enhancing Learning.

(Contd. from page 3)

Conclusion

In today's world where teachers have a busy schedule, it is noticed that only a few teachers have time for the students' learning experiences. One thing which is lacking in almost all classrooms is teachers motivating students to do better. What happens is that teachers would like to give attention to the students who have high IQs and who are academically good. A larger portion of the student population is neglected. Teachers blame them for not trying to do their best.

However, many educators look at this problem from a different perspective. If students can be helped just a little bit by concerned teachers things will be different. For the teacher the salary may be little. However, his pride is invested in the number of successful students he produces and the contributions made by those successful students to society.

Therefore, teachers must take up the challenge of enhancing the learning process and experiences of their students in the light of the suggestions made in this discourse. The little done by the teacher can go a long way to enhance the learning experience of our students. Begin now, for our students need encouragement from you as a teacher, a guide and a counsellor.

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Independent India.....

(Contd. from page 5)

An ELISA system using synthetic peptides for HIV I and HIV II, chimeric monoclonal reagents to detect HIV I and II in a drop of blood and western immuno blot assay have been developed. Immunoassays and molecular probes have been developed for typhoid, filaria, leishmaniasis, TB, hepatitis A, B and C, rabies, toxoplasmosis, amoebiasis, cerebral malaria and aspergellosis. Vaccine against leprosy is developed and birth control vaccine is in advanced stage of development.

Achievements of Indian science not only includes in different sectors, but it also aimed at different sections of diverse society especially scheduled castes, scheduled tribes and other weaker sections. Fifteen tribes from the states of Bihar, Orissa, Madhya Pradesh, Kerala and Maharashtra have been screened for the genetic disorders and remedial measures have been suggested; a vermi-composting project was implemented for the benefit of tribals living near Mahabalipuram of Tamil Nadu. These are mere few examples.

It is true that significant strides have been made in all the spheres of science in the post-independence period. All this magnificient progress has been achieved just within a period of 50 years.

All these are marvellous memorable achievements. But the fruits of achievements in science have not been reached all the members equally. Even today millions of people are victims of poverty, illiteracy, ignorance, hunger and disease. Need of the hour is that Indian science has to attend the problems of these deprived. ❑

Innovations Practiced in Continuous Comprehensive Evaluation

Dipti Oza*
Anitha D. Shetty**

Introduction

Primary schools are social institutions because they are created by people to meet an important social need — the education of children. The number of children attending elementary schools form the largest of individuals attending schools. Due to various constraints the number decreases as we go to secondary stage. The reasons are many. To list a few — lack of motivation, irrelevant curriculum, high drop out rate, lack of proper evaluation etc. Parents and adults of a given community are concerned about their children in school.

No simple rule, no general stereotype and no broad set of generalisation can adequately explain the process involved in primary schooling. Schools are complex social institutions, because the children who attend them are complex social beings. Attempts to understand the elementary school must be based on the important ideas which underlie its development, upon the breadth and variation of its practices, on its common, persisting organisation problems and on the realities of children, teachers and parents, who by their hopes and efforts make these educational programmes possible and significant.

The primary school curriculum has expanded from a limited offering of reading and writing to a great variety of 'subjects'. Most of the new additions to the curriculum are derived from two sources, the expansion of three R's; and the inclusion of a number of areas which were previously taught in the early high school. Of the three R's, communication or literacy, gets greater emphasis along with language, composition, literature and writing. New areas are incorporated in the primary curriculum in response to social developments. The rise of commercialism and nationalism led to the introduction of geography and history. This is in response to the social development, expansion in Science and Technology, exposure to wider variety of media and impact of man and machinery on environment. As the importance of science to the expanding economy became apparent, nature study was added. Resources are becoming a scarce commodity due to economic growth and human impact. To emphasise this environmental studies was included. Besides these scholastic subjects, subjects like drawing, art, music, games were also included which help in developing the physical & motor skills, aesthetic sense and values of the children.

The watchword of primary school is good citizenship for young children, rather than preparation for college or for some particular vocation. This attempts to describe in a nutshell what the primary education should aim at. The curriculum should focus towards

- Physical development, health, body care.
- individual, social and emotional development.
- ethical behaviour, standards, values.
- social relations, the social world.
- physical world.
- aesthetic development.
- communication.
- quantitative relationships.

Each of these areas is to be considered in relation to the

- knowledge and understanding.
- skills and competencies.
- attitudes and interests.
- action patterns appropriate to the children at different grade levels.

Objectives for the primary school indicate its task to help children understand themselves and the physical and social world in which they live, to develop those abilities and skills which permit effective judgement and action and to encourage the inculcation of those attitudes and values which promote the child's faith in himself, his fellowmen, his future and God. So that he will be able to live effectively both within himself and with others.

Objectives of Primary Education

In consideration of the relevant dimensions and the areas of criteria, the objectives of primary educa-

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tion are developed as follows in order of their importance :

1. To learn and practice the basic principles of healthy living in individual and social respects;
2. To develop qualities of mind which will help the child to lead a mentally healthy life;
3. To develop desire for knowledge and mastery over its processes so that the child develops critical thinking, rational outlook and creativity;
4. To appreciate his home, recognize his duties and responsibilities and help members of his family in everyway for their happiness;
5. To give opportunities to the child to take active interest in the life of the school and the community and to enable him to appreciate the value of co-operative and democratic living, leading to national outlook through practical experience;
6. To develop in the art of communication of his feelings and thoughts orally and in writing or through any other media;
7. To give opportunities to the child for his aesthetic development by organising the class, the school and the school environment favourably for this purpose and by encouraging the child in his expression;
8. To help the child understand the place of moral values and to encourage him to behave accordingly in social life of the school and the community;
9. To develop understanding of democratic social structure and encourage to behave in respect of one's rights, duties and responsibilities as a citizen;
10. To organise school life with a view to develop ethical qualities in the child;
11. To develop in the child knowledge, skills and attitudes required for the progressive economic development of the individual and society, with systematic application of scientific and technological advancement;
12. To develop in the child appropriate knowledge and skills required for buying and selling commodities with individual and social interest;
13. To develop in the child understandings, skills and attitudes required for a cultured person;
14. To develop national and international understanding.

In such context the curriculum, teacher and the evaluation process forms very important. A child has to be evaluated on various parameters pertaining to cognitive, affective and psychomotor domains. It is the stage to foster cognitive development and also a stage to diagnose peculiar behavioural development. Therefore the evaluation needs to be continuous and a everyday happening.

Evaluation

The term evaluation refers to the accumulation of comprehensive evidence concerning the abilities, status and problems of children by means of formal as well as informal procedures. It includes also the process of organising and interpreting this information into a comprehensive description of the child against the background of his educational experience. The purpose of the whole procedure is to enable the teacher to provide educative experiences for which the child is ready and which meet his developmental needs.

Purpose of Evaluation

The general purposes of evaluation in the primary school are as follows

— to reveal what is happening to each child.

— to motivate learning through furnishing pupils with information concerning success in various areas of the curriculum.

— to furnish teachers with a means of appraising teaching methods, text books and other instruments of the educative process.

— to provide a basis for continuous improvement of the curriculum.

— to give pupils experience in evaluation of their own progress.

— to apprise the progress the school programmes is making towards the achievement of the accepted objectives.

An Adequate Programme of Evaluation

The programme of evaluation must be worked out through co-operative study and planning by the staff of each primary school in terms of the needs of the local community and the children in the school.

— Evaluation procedures should be closely related to the objectives and the activities of the curriculum. The evaluation procedures used will be determined by the nature of objectives and the activities through which the objectives are to be achieved. Thus, objectives, activities and evaluation are dynamic, continuous and integral parts of the educative process.

- The evaluation programme should be comprehensive. The evaluation of academic achievement is extremely important, but evidence concerning personal-social adjustment, physical development, habits of work, interest and attitudes, special aptitudes, growth in creative ability, home and community background must also be available if the school is to do the best job possible in fostering the wholesome growth of children and preparing them for effective living in a democratic society.
- Evaluation of pupil progress should be continuous. Evaluation is not something that is done after teaching has been completed, it should be done simultaneously with teaching and learning. Not only results of paper-pencil tests but every detail of behaviour that the teacher can observe should be material for the evaluation process. It is during this school period that the process of evaluation reveals the aptitudes, abilities, achievements, interest and environmental backgrounds of the child that determine to a large degree the educational needs.
- Evaluation of pupil progress should be co-operative. Pupils should be encouraged to engage in self-evaluation. Failure to develop in children both the desire and the ability to evaluate their own progress or at least to seek guidance of the teacher will result in many types of educational weaknesses in the later stages. The pupils should learn to become increasingly independent in appraising their progress, problems and growth.
- The results of evaluation should be used for continuous curriculum improvement. The curriculum organisation should be flexible enough to enable each teacher to change the course of action whenever the results of evaluation indicate that a change is desirable.

Factors that Need to be Evaluated

The final criterion by which school practices must be evaluated consists of what is happening to the child. It is through evaluation that one can realise the potentialities of each child, know the factors that are promoting and retarding his progress and a factual basis upon which the teacher can determine educational experiences that will best meet his needs. The major factors to be evaluated in pupils growth are :

- abilities.
- aptitude.
- achievements
- Personal-social adjustment.
- motor skills.
- interest.
- attitudes.
- work study skills.
- creative self expression.
- critical thinking.
- the home and community background of children.

The task of evaluation is not to select and eliminate but to determine the kind of education and training that will meet the needs of a child.

RESEARCH BASE FOR CONTINUOUS EVALUATION

1) Kothari Commission (1964)

Chapter IX

Teaching Methods, Guidance & Evaluation

9.65 *The new programme of evaluation*

The evils of the examination system in India are well known to everybody. The baneful efforts of the system on education in general and secondary education in particular, have been discussed in the reports of several committees and commissions, after reviewing these defects at the secondary education stage, recommended a new approach to school evaluation and made a number of concrete proposals for the improvement of the external examination and the methods of internal assessment. The outstanding feature of the new reform movement is the emphasis laid on the modern concept of evaluation.

9.66 *The new concept of evaluation*

It is now agreed that evaluation is a continuous process it forms an integral part of the total system of education and is intimately related to educational objectives. The techniques of evaluation are means of collecting evidence about the student's development in desirable directions. These techniques should be valid, reliable, objective and practicable. Several aspects of the student's growth that cannot be measured by written examinations and other methods such as observation techniques, oral tests and practical examinations have to be devised for collecting evidence for the purpose.

9.69 *Evaluation at the lower primary stage*

One of the main purposes of evaluation at the primary stage is to help the pupils to improve their achievement in the basic skills and to develop the right habits and attitudes. It would be desirable to treat the lower primary stage covering classes I to IV as an ungraded unit, because this would help the children coming from different backgrounds to advance at their own pace.

9.71 *Evaluation at the higher primary stage*

Cumulative record cards play a vital role in indicating the growth and development of the pupil at each stage, his academic and emotional problems and his difficulties of adjustment.

> 9.73 While we are not in favour of a compulsory external examination, we believe that for the proper maintenance of standards, periodic surveys of the level of achievement of primary schools is necessary.

2. Survey of Research in Education

Research in Elementary Education — A Trend Report

Evaluation Studies

Only few studies have been conducted in the area of evaluation. One was by Tiwari (1975) in which he studied the system of evaluation in upper schools and its problems. An important feature in it is the non-detention of students in primary classes. The SCERT, Andhra Pradesh (1976) studied the impact of the non-detention policy. It was found that, while the students were free from fear of examinations, they were not motivated for study. Their study habits were impaired and this policy adversely affected the children of the weaker sections. Sharma (1981) on the policy indicated that non-detention contributed towards reduction of educational wastage to some extent at the primary and secondary stages in A.P. One of the areas of research needs identified is continuous evaluation and diagnostic testing.

3. National Policy on Education — 1986

The evaluation process and examination reform

8.23 Assessment of performance is an integral part of any process of learning and teaching. As part of sound educational strategy, examinations should be employed to bring about qualitative improvements in education.

8.24 (iii) Continuous & comprehensive evaluation that incorporate both scholastic and non-scholastic aspects of education, spread over the total span of instructional time.

NPE — 1986 — Programme of Action : Evaluation and Monitoring

35. The present system of evaluation and monitoring will not be sufficient for the new strategies of UEE. In the new evaluation and monitoring system the main features will be as follows :

(a) A critical point of evaluation in the educational system is the progress of the learners. Hence as mentioned elsewhere, the greatest attention will be paid to creating a scientific system of evaluation of learners, which would serve both as the basis for improvement of the academic programme and as the measure of the overall quality of elementary education system.

Evaluation process and examination reforms

In order to attain the objective of integrating the process of evaluation with teaching and learning, several long-term reforms will be necessary. At the school level.

- Schemes of evaluation consisting of examinations to test those aspects of learning — which can be assessed through formal examinations and the procedure for assessing those aspects which cannot be tested through such an examination, will be developed. Abilities and proficiencies which can and should be assessed through institutional evaluation will be identified and procedures are evolved for such evaluation.
- The development of schemes of evaluation is a continuing process. To provide professional support to this process, the boards of education will consider setting up a consortium for initiating research and development in evaluation procedures.
- Alongwith external examinations, continuous institutional evaluation of scholastic and non-scholastic aspects of education will be introduced.
- Evaluation of students performance will move towards cumulative grading system.
- The certificate of institutional evaluation may cover academic achievements as well as non-scholastic aspects.
- Attempts will be made to move towards a situation in which only those who teach will evaluate their students.

- Integration of evaluation with the process of teaching and learning will help diagnose the weaknesses and deficiencies in education. This diagnostic aspect will be utilised to develop remedial programmes for weaker sections.
- Facilities will be provided in schools and colleges for maintenance of students records to facilitate continuous institutional evaluation.
- Programme of training and orientation of teachers will give special attention to new evaluation methodologies, setting up of question papers and measurement of performance.

4. **Education For All by 2000 — Indian Perspective; NIEPA (1990)**

Evaluation

While we plan for a system of evaluation, the defects of the existing examination system need to be recalled. It has been almost unanimously accepted that the present examination system which purports to measure achievements of the students is the single most distorting influence on the entire educational process shifting as it does emphasise from learning to the narrow goal of performance in the examination. In view of this past experience, any system of evaluation will have to be carefully thought out and operationalised in such a manner that it does not repeat the pitfalls of the existing examination system.

Evaluation as a part and process of learning is different from evaluation to measure outcomes. We shall discuss evaluation in both these important contexts.

Evaluation as an Integral Part of Learning

The main objective of evaluation as a part of the process of learning is to monitor progress, identify deficiencies, weaknesses, and strengths of learning so that remedial teaching can take place to remove the deficiencies, and further learning can be built upon the strengths identified. From this angle, evaluation has to be continuous.

In the process of evaluation, learners and teachers play the main roles. However, the parents, the community and representatives of the education system also have to be involved in assessing the progress of learning. Therefore, mechanisms to involve them should also be evolved.

The involvement of persons outside the school in continuous comprehensive evaluation is not to bring in an element of externality. We view the total learning process and education as the responsibility of the community as a whole and the school or the non-formal education centre as only an instrument used by the community to assist children in their process of learning. The whole community is seen as a part of the system of learning, and to that extent involvement of the parents and other members should be construed as involvement of members within the learning unit.

Modes of Evaluation

The existing system almost exclusive uses the written mode, which has severe limitations. Many kinds of competence one wishes to develop can be better tested in the oral mode or through performance tests. Non-cognitive areas require different methods of assessment. This will be discussed separately. However, for assessing learning in the cognitive domain, the following modes may be used : 1. Written tests; 2. Oral tests; 3. Performance tests; and Practicals.

Continuous comprehensive evaluation may be undertaken in the following manner, all of which are complementary to one another :

1. *Self-evaluation by the Learner*

The learner is a person who needs to know most what he has learnt, how he has learnt, and what he has not been able to learn. This will enable him to direct efforts in the right direction. In the child-centred education we have envisaged, this should be an important mode. To operationalise this, it would be necessary to evolve simple techniques of self evaluation which the children in the primary and upper primary schools can use. The teachers will have to, in the initial stages, assist the children in the use of these techniques. Gradually, however, they should be able to do so on their own. Children will be encouraged to use self-assessment techniques and seek assistance from the teacher for remedial action.

2. *Evaluation by the Teachers*

After every identified unit of curriculum transaction, the teacher should evaluate the level of learning of the child. This should be done in a participative manner where there is a proper rapport between the teacher and the child. The result should be freely discussed with the child in a constructive manner highlighting his achievements and bringing to his notice in a subtle manner, the deficiencies. Subsequent remedial learning should be organised to ensure removal of the deficiencies.

3. *Evaluation with the help of the community and persons from the school complex/DIET*

Parents, members of the village education committee and other interested persons in the community should be involved in evaluation, in which the teachers and the students have to play the most important role, cannot be done on a continuous basis. Periodically, however, such involvement would be possible.

Evaluation of Non-cognitive Aspects

Although education has comprehensive objectives of developing skills, values, attitudes, in addition to knowledge, by and large attention has remained confined to the evaluation of the cognitive domain in terms of assessing the level of information and knowledge attained, neglecting completely the affective and psychomotor domains, neglecting very crucial components like attitudes, values, social, and emotional development. In assessment of these crucial areas, observation is the best way, since most of these are manifested in the behaviour of the learner. The behaviour of the learner in addition to the teacher is also observed by his friends, parents, and the other members of the community. This is one of the grounds of, and justification for, involvement of persons from the community in the total process of evaluation.

One of the reasons for neglect of components like attitudes, values, social skills, and emotional development is our predominant and almost exclusive, use of the written mode of assessment. To assess these non-cognitive areas, it would be necessary to follow other modes in addition to the mode of writing. Since we propose to develop important non-cognitive areas like character, attitudes and values, and psychomotor areas, their evaluation will also be essential. In this context, a slightly different approach should be adopted. Values and attitudes develop over time and there are no well-defined stages where their progress can be measured. Therefore, continuous evaluation in respect of these characteristics will imply evaluation after intervals longer than those applicable to the cognitive area. The development of a skill also is a long term phenomenon. However, its progress can be measured by the speed and quality of performance. Therefore, with regard to these skills, the intervals for evaluation will be shorter and the mode will be through actual performance.

5. Janardhan Reddy Committee (1991) Report

Twenty two task forces were constituted on different subject areas.

Evaluation

21. Process and Examination Reforms.

21.3.1. Minimum Levels of Learning (MLL) has been determined. Comprehensive continuous evaluation at elementary stage is recommended.

SWAMI RAMANAND TEERTH MARATHWADA UNIVERSITY, NANDED

स्वामी रामानंद तीर्थ
मराठवाडा विद्यापीठ, नांदेड

"Dnyanteerth", Gautami Nagar,
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Applications are invited for the post of -

CONTROLLER OF EXAMINATIONS.

Candidates, who are not less than 45 years of age and possess requisite academic qualifications and administrative experience with proficiency both in English and Marathi language alone shall apply alongwith a crossed D.D. for **Rs. 200/-** towards scrutiny fee, to reach the undersigned by designation on or before **22-1-2000.** The envelope containing the application together with documents in support and a copy of the **Bio-data** be superscribed - "Application for the post of **Controller of Examinations**".

Essential qualifications : a) Master's Degree in any faculty with atleast 55% marks or equivalent grade from any statutory University.

b) 13 years teaching experience as teacher in a University / College / recognized institution with five years experience in educational administration / conduct of University examinations. **OR** Possess comparable experience in research establishment or other institutions of Higher Education. **OR** Possess five years administrative experience as Deputy Registrar or 13 years experience as Assistant Registrar.

Scale of Pay : 3200-4600 (presently unrevised but likely to be revised soon). However selected candidate holding permanent post will be entitled for pay protection in the salary scale applicable to them.

Note : 1. Relaxation of age limit is permissible in the case of applicants employed in any University / College / Recognized Institute.

2. All eligible applicants will have to appear for the Exposition both in English and Marathi to be conducted prior to personal interview. Candidates successful in written test / Exposition alone will be eligible for personal interview.

3. Employed persons will have to submit their application through proper channel.

4. Applications incomplete in any respect, not supported by documentary proof and not having a copy of the bio-data will be summarily rejected.

Advt No. NTP-3/99-2000
Date : December 29, 1999

Prin. Dr. P.G. Jadhav
Registrar

SPREAD SHEET

Human Development Index of Selected Countries—I

S.No.		*Life expectancy at birth (years) 1997*	*Adult literacy rate (%) 1997*	*Combined first-, second- and third-level gross enrolment ratio (%) 1997*	*Real GDP per capita (PPP$) 1997*	*Life expectancy index*	*Education index*	*GDP index*	*Human development index (HDI) value 1997*
1.	Canada	79.0	99.0	99	22,480	0.90	0.99	0.90	0.932
2.	United States	76.7	99.0	94	29,010	0.86	0.97	0.95	0.927
3	Japan	80.0	99.0	85	24,070	0.92	0.94	0.92	0.924
4	Australia	78.2	99.0	100	20,210	0.89	0.99	0.89	0.922
5.	United Kingdom	77.2	99.0	100	20,730	0.87	0.99	0.89	0.918
6.	France	78.1	99.0	92	22,030	0.89	0.97	0.90	0.918
7.	Germany	77.2	99.0	88	21,260	0.87	0.95	0.89	0.906
8.	Spain	78.0	97.2	92	15,930	0.88	0.95	0.85	0.894
9.	Hungary	70.9	99.0	74	7,200	0.76	0.91	0.71	0.795
10.	Malaysia	72.0	85.7	65	8,140	0.78	0.79	0.73	0.768
11.	Russian Federation	66.6	99.0	77	4,370	0.69	0.92	0.63	0.747
12.	Philippines	68.3	94.6	82	3,520	0.72	0.90	0.59	0.740
13.	Iran, Islamic Rep. of	69.2	73.3	72	5,817	0.74	0.73	0.68	0.715
14.	China	69.8	82.9	69	3,130	0.75	0.78	0.57	0.701
15.	South Africa	54.7	84.0	93	7,380	0.50	0.87	0.72	0.695
16.	Egypt	66.3	52.7	72	3,050	0.69	0.59	0.57	0.616

PPP$ — GDP per capita

Source : Human Development Report 1999, UNDP.

The Purpose of Education

Dr. (Ms.) A.S. Desai, Former Chairperson, University Grants Commission, delivered the convocation address at the 86th convocation of Nagpur University. She said, "Education has to be a process which prepares the student to learn to develop a way of thinking, that is know how to seek information, know the sources for obtaining it, how to sort out the information, analyse it, and make meaning out of it for conceptualization and application." Excerpts

Each one us passes in life from one important stage to another and, for each stage, there is a ritual that is known as the "rites of passage". The Convocation is such a rite in the academic passage of a scholar, and the first graduation with a Bachelor's Degree is as significant as achievement at the subsequent three stages of the Master's, the M.Phil. and the Ph.D. There is considerable satisfaction when the student feels a sense of having accomplished a job which is well done as per his/her expectations. Not all of us expect to make it to the merit list. If our achievement is commensurate to our capacities and we have made the best use of the available opportunities, it should lead to inner pleasure and a sense of satisfaction, whatever the outcome. This inner pleasure is not to be confused with societal measures or expectations of our performance. However, herein lies the problem that students face, which is that pleasure is not derived form the learning and its mastery within the parameters of our individual motivation and capacity in interaction with the learning opportunities, but by the degree of judgement of our performance as expressed by the expectations of others through an external benchmarking of achievements.

The result is that we have lost the pleasure of learning as a process of discovery. We now learn because we have to meet some objective measures and not to meet our subjective needs. On the other hand, teachers have lost the pleasure in teaching because they teach what others prescribe as being best to be taught and, not necessarily, what the individual thinks he/she should teach out of the discovery of his/her student's needs arising from the Student-Teacher interaction. The "massification" of the system of education has resulted precisely in what the industrial system did — it tries to turn out clones, identical products supposedly capable of similar (if not the same) knowledge through processes. In fact, there is little of thinking and much more of regurgitation of the matter. Our education process has left little to individual imagination, creativity, initiative or innovations, either for the Student or the Teacher.

Moreover, to turn out a mass product, we have developed a method of evaluation which puts everyone through a system supposedly using a common yardstick of the same paper for a preset university curriculum. I do not know whether, in fact, there is sufficient hard evidence, or only a myth, that the system has tried to build in equity, since the input of various teachers is not the same nor is evaluation necessarily uniform, especially when there is more than one examiner for a subject with a large number of papers. To coerce uniformity, guide-books have appeared on the market and tuition classes which are purely examination-oriented with focus on how to answer the probable questions. Hence, ultimately, examinations are reduced to specificities and allow no room for thinking through, for expressing one's own perspective, or requiring an analytical response. Therefore, our current system of examinations has spelt disaster for education as a whole as it dictates what we teach, whereas, who teaches or how it is taught becomes irrelevant, because the person of the teacher is increasigly sought to be depersonalized. The loss, in the process, has been the meaning and relevance of education as also accountability of the Teacher and the Student.

Education has to be a process which prepares the student to learn to develop a way a thinking, that is, know how to seek information, know the sources for obtaining it, how to sort out the information, and make meaning out of it for conceptualizaiton and application. As we move to the age of information technology, our present system, already dysfunctional, will become fully so as it is not the information *per se* but how to access it and to make some meaning from it, which will take precedence for an increasingly knowledge based society. We will have to move away from a system which treats the students as a mass and attempts to remain fossilized as rapid changes are severely inhibited in such a system. As we move to the next century with its demand for rapid change, the Teacher-Student relationship will have to mature into that of a facilitator-learner relationship, one in which the students' needs are the focus of planning the learning-teaching sequence, and evaluation will necessarily be based on what was taught by the teacher using various methods to test a spectrum of behaviours which include thinking, feeling and doing. The totality of learning cannot be said to have taken place in what we call genuine education, unless the syllabus allows the teacher to evolve the substantive content for the required learning in the classroom, and provide "hands-on" experience, all of which should lead to the development of appropriate knowledge, skills and attitutdes.

The role of the conventional universities will have to change drastically from one which is now pre-occupied in certifying the performance of each individual student, to one of teacher-facilitator and the supervision/monitoring of the affiliated institutions and the university departments. The managerial task of the university, then, will not be decide on admissions, what to teach and how to certify. It will be spent more profitably on monitoring the quality of its constituents, and facilitating teacher development programmes. Within this lies the concept of autonomy and accountability of the system to show performance, especially since the students, graduating from each constituent autonomous unit will be known ultimately by the way they perform, either in further education or in employment. The name of each college/department should appear on the university degrees so that the public knows the performance of students from the respective institutions and, thus, academic accountability is fixed.

Attempts to fine-tune the present system will not solve all the problems because what is needed is to change the system itself. Unless we free the university system from the constraints, presently imposed, there is no hope for the system to meet the challenges our students, who graduate from universities, will have to face in the twenty first century.

The university must create a climate for change to happen. The human environment is the largest contributor to impacting on learning. The climate is often set by the one who is appointed to lead, the standard bearer, the Vice-Chancellor. Leadership qualities and academic capacities must blend with administrative experience to be able to have a vision for the development of the academic programme. Similarly, college principals, heads of departments in colleges and universities and the large body of teachers and other staff, must be appointed through fair and transparent processes, and must have the desired qualities for the position to be filled. Unfortunately, our universities and educational institutions are often affected by political expediency than the requirements for the job. Then they are blamed for not being able to perform their jobs. It is time that the problems created by political intervention on the campus are recognised, and action taken by the university community, the political parties and the government.

The Vice-chancellor and the teachers, together, must define the mission of the university and how best it is to be achieved. The contribution of staff, other than the academic , is also extremently important in creating a climate on the campus which gives the message that we are jointly responsible to facilitate the students' learning and to assure a positive outcome.

The government has become a vital player in the educational system. It is obligated to meet the requirements of the system, it has set up in the first place. Its obligation is to provide the necessary funds to achieve the educational objectives which include appropriate salary and promotional structure for the teachers, vis-a-vis others in the public services sectors, and in meeting the requirements to maintain standards, such as physical infrastructure and the quality of teaching. The government must have policies which enhance the educational process, shaped by educationists and not by generalist administrators.

Finally, it is transparency which gives legitimacy to the actions of an institution. Decentralized management, power sharing as decisions are taken at various points in the structure, and a collegial pattern of administration, would change the very ethos of the institution as it will increase transparency. Ethics have sometimes become a casualty of the system. Honesty and integrity should be the hall-marks of all academic institutions to set the tone for our society at large, whether it is in teaching, marking students' papers, undertaking research, in student admissions and staff appointments, or in administrative procedures. It is possible to accomplish it and it has been demonstrated by several educational institutions in this country which place a premium on such values and show transparency in their functioning. One of our conventional universities had even introduced the system of showing the evaluated papers. To its surprise, it found that the effect was to reduce the number of requests for re-evaluation because not only did they realize that their performance was poor after seeing the remarks on their papers, but, also, they could not, any longer, fool their parents into believing that the marks were incorrect added or assigned.

There is much that lies ahead for us to ponder over and consider if we want a system which gives the students a message that it means business when it contracts with the student, at admission, to provide a learning environment. On their part, it is for the students to make appropriate expectations for a relevant and qualitative education which will set them on the path to life achievements as adults. That is possible only when students also do not compromise, and bargain for concessions which only lead to lowering of standards such as asking to be passed when they fail. Moreover, external political controls on student bodies, teacher bodies and other staff, have often led to political posturing on the campus for ends which have least to do with education. Associations on the campus will always be there to play their effective role in assuring both transparency and achievement of institutional goals and, possibly, also the class goals of various groups. However, these are not the same as active allegiance to specific political groups and ideology, with which we should have our affiliations in our individual right, as citizens, but not reflect their ideologies in our campus group affiliations as it leads to internal group conflicts which often result from toeing the party line. In fact, I am not aware of any real long term gains to any campus groups through such political affiliation. It is when all the campus groups come together on a common agenda, within a value framework that supports the objectives of education, including the learning life roles as a worker, family maker and citizen, that will ultimately make a university what it should be.

University education provides an unique opportunity to help young adolescents and also those on the threshold of adulthood, to find themselves as individuals. They need to develop a self-concept and a societal value system which is syntonic with those that our nation's far-sighted constitution framers have given us as the basis for the governance of our relationship as members of the state. These societial values need to be reflected in our attitudes and behaviour.

When student enter higher education at the undergraduate level, they are beginning to question custom and tradition, and trying to formulate their own value system. What does the college do to initiate and sustain debates on societal issues, expose the students to the realities of our polarized socio-economic structure and the need for social change? How far is this effort further consolidated at the postgraduate level as the adolesecent enters young adulthood ? Societal values, deeply rooted in our constitutional mandate, of equity and social justice in a democratic framework and a pluralistic social order, should help students question caste, class and gender divisions and exploitation, or the conflicts created by religion, language and ethnicity.

We give very little weight to personality and attitude development as a very essential component of education. There is nothing in our syllabi or our co-curricular activities to emphasize personal values as truth, integrity, respect for other which, consequentially, would mean responsibility on each of us to assure human rights as we value each person and his/her right to life equal opportunity.

Unless we humanize our curricula, and include courses which develop social awareness and promote a personal value system, education in its real sense, would have failed to achieve its objective. Social science content, history, philosophy, literature and human rights education, have much to offer in this regard but these subject, today, have been placed on a lower "value" hierarchy in student choice of subjects. It is very necessary that students taking subjects in science, commerce and professional courses, have particular exposure to such subject matter which can raise the student's sights beyond himself/herself, and preoccupation with the specialization, to a larger awareness of self and society. Not only is such awareness raising possible in the courses offered, but also in co-curricular activities, especially in students placement in field outreach activities with disadvantaged groups.

Our programmes must become increasingly career oriented, so that our students find ultimate meaning in life through their chosen careers. A great deal of modification of the courses is required, especially those in the liberal arts and sciences, as well as in commerce, to achieve this objective. Besides giving a career orientation to the courses, these programmes and professional courses cannot be divorced from such subjects which will lead to the formation of students as responsible adults and complete persons. Hence, some of the humanities and social science courses must be integrated into such professional courses as engineering and medicine, commerce and science.

I always dream, for not to dream is to stop in our tracks and become fossils, to be left behind, for time and tide wait for no person. We have the responsibility to the nation to prepare our students to meet the needs of its millions many of whom have not even enjoyed the benefits of the century. I have said many times that our universities are like sleeping giants. When they awaken, they can make an immeasurable difference to the progress of this nation. Let us hope that we will rise to it together — the university system from within and the government from its position since it established the system and is responsible for the assurance of its standards. ❑

CAMPUS NEWS

Higher Education and Society

The Human Resource Development Minister, Dr. Murli Manohar Joshi, rapped the teaching community for taking to the street, and suggested that they instead build a movement to pressurise the government to increase allocation on education from the proposed 6 to 10 per cent of the Gross Domestic Product.

The minister was speaking at a 2 day national seminar organised by the Federation of Central Universities Teachers' Association on, "The Role of Higher Education in Society."

Dr. Joshi said the private sector must be tapped to generate additional funds for higher education in the country.

"There should be some synergy between universities and the industry," he said, while stressing there was an enormous gap between the available resources and the demands of higher education. But this does not mean, he added, that education would be handed over to the market forces.

He said the entry of the private sector would not harm the system since a major part of the expenses are being paid for by them. The aim of higher education should be nation building and teachers should concentrate on quality education.

Allocation for education is like an investment and market should be such that students do not have to rush out of the country as soon as they acquired a degree.

"We should think in terms of mind to supermind and market to supermarkets," the minister said.

He said universities, as also the UGC, should maintain a strict financial discipline and cut administrative costs to the minimum.

"There is also a very strong case for raising fees," he said, adding that he also felt the need to levy a "cess" solely for education.

The government was looking into a regulatory framework to curb the entry of dubious foreign universities into the country, he added.

Speaking on accountability of the teaching community, the minister said, universities should be centres of excellence where the teachers should get together to bring about all round development.

"The quality of teaching has to improve, with regular classes and tutorials ....I do not think the day when students will evaluate teachers is far away," he said.

Union Education Secretary Mr. M K Kaw said "all universities in the country will have to get assessed and ranked by December 31, 2000, and all colleges by December 31, 2003."

The National Assessment and Accreditation Council will grade the institutions on a five-point scale on the basis of teaching, research and infrastructure, among other parameters. The grading ranges from "outstanding" to "disqaulified".

"We are opposed to this scheme because the UGC document on NAAC states government funding will depend on the evaluation and the rank awarded to an institution," said Delhi University Teachers' Association president Dr. S S Rathi.

Added another teacher, Dr. Vijender Sharma, "First the government doesn't give adequate funds to maintain institutions properly and then ranks them... it will lead to closure of many institutions."

The teachers, however, seemed satisfied by the education secretary's announcement that there was no shortage of funds for higher education, with the government releasing Rs. 975 crore to UGC for 1999-2000. "We welcome the government statement that there will no crisis of funds," said FEDCUTA president Prof Kapil Kumar.

Mr. Kaw said all political parties should reach a consensus that six per cent of the gross domestic product should be allocated to education. At the same time, he said universities should meet 25 per cent of their requirements through generation of resources on their own.

If the IITs and IIMs can do it, why cannot universities? "Generate resources through fees, alumni contribution and corporate contributions among other things," said Mr. Kaw.

Chairing the seminar's valedictory session Prof Mushirul Hasan, former officiating Vice-chancellor of Jamia, said there was need for "some kind of a mechanism to minimise" the government's role in higher education.

"As long as higher education is not delinked from the government, we will continue to be plagued with all sorts of problems." he added.

Delhi University Vice-Chancellor Dr. V R Mehta, delivering the valedictory address, also said the government should not interfere with the university system. "We should take care that university remains autonomus...UGC is a funding body and must remain a funding body...universities have to maintain academic standards themselves," he said.

Stressing that the condition of libraries, labs and other infrastructure facilities in universities was terrible, Dr. Mehta said it was the government's responsibility to ensure that institutions were properly maintained.

The Vice-Chancellor agreed that universities had to garner some resources on their own through consultancy, research and university-industry collaboration. "But first let us have the infrastructure on the basis of which we can generate resources... (government) investment in education has to be enhanced," he said. Universities also have to reinvest themselves to respond to newer challenges. Innovative ideas and research and development have to be encouraged in universities to ensure India can compete globally, said Dr. Mehta.

He also underlined the need for devising a new mechanism for recruitment to teachers. "It should be strong enough to recruit the best in society..... I personally believe we should have an independent panel of persons, autonomous of forces within and outside the university, for recruitment," he added.

Millennium Youth Festival

Arunachal University recently organised the 3rd Inter College Millennium Youth Festival 1999 in which the Hon'ble Chief Minister Shri Mukut Mithi gave prizes to the winning participants. The four day Youth Festival at the picturesque Rono Hills a spirited competition among the six contingents drawn from five Govt. Colleges i.e. J.N. College, Pasighat, Donyi Polo College, Kamki, Govt. College, Itanagar, Govt. College, Bomdila, Govt. Degree College, Tirap and the host Arunachal University. The festival included the games & sports activities, literary events and cultural competitions marked by a grand 'Fashion Show'. The Champion of the Champions trophy was bagged by the Govt. Degree College, Itanagar, and second position by the Arunachal University. Arunachal University secured the first position in literary competitions and also in the Fashion Show. Mr. Bharat Lingu of Arunachal University was adjudged the 'University Blue' 1999.

Hon'ble Chief Minister Shri Mukut Mithi in his valedictory address stressed the need for making education meaningful for the society and visualised the role of the university as the vehicle of social transformation and the means to bridge the gap between the educational institution and the community at large. On the occasion, he exhorted the youth and the teachers as well as the administrators for better management of available resources for taking the State to the path of happiness and prosperity in the new millennium. He also assured of conversion of Arunachal University into a Central University. He generously donated a sum of Rs. 30,000 for the participants.

Earlier, Shri Joram Begi, the Registrar AU, in his welcome speech expressed his gratitude to Hon'ble Chief Minister Shri Mukut Mithi for gracing the occasion as the Chief Guest. He dwelt at length the achievements of the University highlighting the multicultural composition of the university community. He focused on the problems of the university and requested the state Govt. to provide the necessary infrastructural support such as timely completion of the bridge over the Dikrong river, construction of an alternative approach road to the university campus and provision of a permanent water supply system on the campus, in order to nurture the only institution of higher education in the state. Mr. Begi also requested the Chief Minister to take up the matter of conversion of AU into a Central or Centrally funded university. He expressed his sense of gratitude to the Ministry of Home Affairs for sponsoring an Essay Competition through the State Department of Education on the theme 'Composite Culture and Communal Harmony in Medieval India' which carried a cash prize of Rs. 5000, Rs. 3000 and Rs. 2000 for the 1st, 2nd and 3rd positions respectively. Mr. Obang Mingkyi and Mr. K. Dabi of J.N. College, Pasighat got the first and the second position while Ms. Joram Rina of Arunachal University stood third.

Shri Sanjeeb Tana Tara, President AUSU, also thanked the Chief Minister for his presence on the occasion and requested him to personally look into the problems of the university community.

Dr. K.K. Dwivedi, the Vice-chancellor, in his presidential address expressed a sense of satisfaction over the successful conclusion of the youth festival, the last of the millennium, and congratulated the winners, the participating contingents and the entric organizing team. Arunachal university being the only university of the state deserved special attention of the state government as well as the Govt. of India in order to introduce some new courses particularly the Faculty of Information Technology with the Departments of Mass Communication, Journalism and Film & Television institute as the new millennium will belong to knowledge society. He requested the state Govt. for the establishment of Institute of Bio-diversity in the University campus and the clearance of the proposal for starting a Law College in the capital complex.

Shri Pura G. Tago, Asst. Registrar Youth Affairs, proposed a vote of thanks on the occasion.

UP to Revamp Higher Education

The UP Government has initiated several measures to revamp higher education in the state. According to Mr. Om Prakash Singh, Minister for Higher Education, the state government will ensure the minimum 180 working days so that the syllabus may be completed. To achieve the target the duration of the commencement of th examinations and the declaration of the results, which at present is five to six months, will be shortened An academic calendar for the whole year, specifying the last dates for holding examinations, declaration of results and admissions, will be drawn up and strictly implemented.

It would be made obligatory on the teachers to complete the courses in the classes and they would be discouraged from dictating notes to the students. The government will take stern action against teachers who are negligent in the performance of their duties, said the minister.

The Education Department also proposes to introduce drastic changes in the examination system. It has been decided to set up question banks, out of which the paper setters will be asked to set questions requiring short answers, disclosed the minister.

The minister admitted that there was a lot of corruption, favouritism and delay in granting affiliation for the new colleges and the new subjects. He said that many colleges start classes without getting prior affiliation and afterwards plead with the government to allow students to appear for the examinations. It has been decided that such universities and colleges will be strictly dealt with and punished. He disclosed that all the cases of new affiliations will be scrutinised by 15th December every year and finally disposed of by the 20th January.

The minister also said that to work out the details of the higher education policy a conference of the Vice-chancellors will be held in December and similar conferences of the principals of the colleges will be held region-wise throughout the state. The representatives of the teachers' unions will also be involved in this process of consultation for formulation of policies and their effective implementation.

Distance Education in Rajasthan

Kota Open University plans to organize a National Seminar on Distance and Open Learning System in Rajasthan — Challenges before Higher Education in New Millennium at Kota on 28th & 29th December, 1999. Six major themes will be taken up for discussion in the seminar. These are 1. Accessibility to Higher Education and the System of Distance Teaching; 2. Economic Management of Distance Education; 3. Quality Assurance in Distance Education; 4. Management of Student Support Services in the State Open Universities; 5. Emerging Role of Information Technology in Distance Education; and 6. Distance Education Mode for Human Resource Development in Rajasthan.

Essay & Elocution Competition

Ashtang Ayurved Mahavidyalaya & Ashtang Ayurved Rugnayala, Pune proposed to organise the "late Vaidya H.B. Paranjape all India Inter collegiate Essay & Elocution competition."

Subjects for Essay are 1. Ayurveda in Millennium 2000; 2. Standardization of Ayurvedic medicines; and 3. Traditional Research Methods in Ayurveda.

The Elocution competition shall be conducted on 07 February 2000, at Ashtang Ayurved College, Pune 30.

Subjects for Elocution Competition will be — Ayurveda in Millennium 2000; Standardization of Ayurvedic medicines; and Information technology for Ayurveda,

Winners shall be awarded three prizes each in both the Elocution Competition and Essay Competition. While winners in the Elocution competition shall be awarded Rs. 1001/-, Rs. 501/-, Rs. 251/- for the first three positions, winners the Essay competition will get Rs. 501/-, Rs. 251/-, Rs. 101/- respectively.

Students of any colleges/institution belonging to the Indian systems of Medicines viz Allopathy, Homoeopathy, Ayurveda, Unani, Siddha, Naturopathy & Yoga etc including teachers and private practitioners are entitled to take part in the competition.

Last date for acceptance of entry forms is **15th January 2000.**

Students from non-medical

angavastra and cash award of Rs. 25,000/- (Rupees twenty-five thousand) only.

The award will be conferred on her on 1st Day of January, 2000, the 33rd Foundation Day of the Sambalpur University.

NSS Winter Camp

Participation of students in the National Service Scheme strengthened their Social Commitment, said Mr. H.S. Suresh, NSS Assistant Programme Advisor, Govt. of India, while inaugurating the National Service Scheme Special Winter Camp of ten days duration organised by the Poona College NSS Unit at Awahlwadi Village in Haveli Taluka recently.

He said that Youth have to function in many roles and they have lot of scope for social service through NSS.

Prof. K.P. Bairagi, NSS Programme Coordinator, University of Pune, in his presidential address urged NSS Volunteers to undertake rural development work with determination and help the villagers in solving their problems.

During the ten-day camp, the NSS Volunteers prepared seven Soak Pits for the waste drain water, cleaned the roads, temples, school, public places etc. A Street Play on the topic 'Need for Literacy Drive' was performed by the Karyakarta Pathnatya Sangh.

Lectures on various topics such as Stress Management, Educational Toy Play, Social Development, Youth Development, Health Education were organised for the personality and Youth Leadership Development.

A poster exhibition on 'AIDS Awareness' was also organised.

Inter Varsity Table Tennis

The Madras University women's team has retained the all-India inter-University table tennis title for the third year in a row. The latest success came at Jiwaji University, Gwalior, which hosted the all-India fixture from November 29 to December 3.

Delhi University placed runner-up while Pune came third.

Rural Health Programme

The Gujarat Ayurved University, is launching rural health programme to provide medical care to the people of the rural areas. The objective is to have the complete investigations of the persons for their health status. The villages in the victinity of Jamnagar will be adopted. The opportunity will be given to the students for intensive research on rural health with Ayurvedic methods to enable them to understand applied aspects of preventive and promotive health according to Ayurveda. The team of doctors and P.G. scholars, internees and paramedical staff will visit at least once in a week to assess the health status of the people.

National Seminar

National Academy of Chemistry & Biology (India) and The Foundation for Research, Information and Encouragement of Non-toxic and Dependable Substances of Nature (The Friends of Nature) propose to organise a National Seminar on Indian Natural Colouring Agents Beyond 2000 AD on 11-13 Feb. 2000 at Lucknow.

Invitation

The seminar aims at providing a platform to various scientists, technologists, professionals, experts and entrepreneurs to discuss their experiences and views on the merits and demerits of synthetic colouring agents as compared to the natural ones and also to explore potential of various pigment bearing natural resources of India, specially in the food, drug, cosmetic and textile industries, for their sustainable exploitation in the new millennium. The seminar will have invited lectures, oral or poster presentations, panel discussions, practical demonstrations as well as an exhibition of products consisting natural colourants. The sub-themes will be : Glorious past of the natural colouring agents; Natural versus synthetic colourants in present day health and environment scenario; Cultivation or rearing of pigment bearing useful plant and animal species; Techniques of improvement of quality, quantity and extraction of natural colouring agents; Use of natural colourants in foods, drugs, cosmetics and textiles; Estimation of important colours in their natural sources and the finished products; Other studies related to botanical, chemical, biochemical, pharmaceutical, pharmacological and toxicological aspects; Present availability, future demands and sustainable supply; and Economic feasibility and export potential.

For more details contact Dr. A.P. Singh, Organising Secretary, National Seminar on Indian Natural Colouring Agents, C/o C-85, Sector-B, Aliganj, Lucknow-226 024. Phone : 323421, 329520, e-mail-profrsv@lw1.vsnl.net.in

Online Management Education

Indira Gandhi National Open University (IGNOU) goes on line in Management Education.

IGNOU has announced '20 Capsules Programmes in Management' and 'Management Programme leading to MBA' being offered on line.

Interactivity & connectivity using Internet is the hall-mark of transformation that is taking place world over in the area of education. In keeping with its endeavour to be the forerunners in value based delivery to the learner community, IGNOU has launched the web enabled delivery of management education aided by other latest enablers to extend access and convenience for learners seeking up-gradation in their professional skills.

To facilitate access, IGNOU under its ambitious project, Management Education through Interactive Delivery Systems (MEIDS), has associated with twenty management institutes in different parts of the country. These institutes are called partners in Advanced Learning Systems (PALS) where the prospective students will get enrolled online, submit assignments using client-server technology and can access digital library and other referral material on net. Student counselling will be done using interactive satellite transmission or teleconferencing.

Kaula-Bashiruddin Chair

The "Kaula-Bashiruddin Chair" in Library & Information Science instituted at Aligarh Muslim University in the Department of Library & Information Science is the second Chair in Library Science instituted in any University in India. The first one being the Sarada Ranganathan Chair in Library Science instituted at Madras University in 1957.

The Chair at the Muslim Aligarh University has been instituted to commemorate the "pioneering and outstanding work of Prof. P.N. Kaula and Prof. Bashiruddin – the two stalwarts in Library and Information Science field."

The establishment of Chair in the name of Prof. Kaula along with Prof. Bashiruddin is a great honour to the academic community. Already an International Kaula Gold Medal instituted in 1975 has been awarded to 18 world renowned specialists in Library and Information Science from Canada, Denmark, France, Finland, Germany, India, Japan, Spain, Sweden, Russia, U.K. and U.S.A. Another Award — "Ranganathan-Kaula Award" in the form of Gold Medal has been instituted for those who have distinguished in this discipline. It has been awarded to 8 recipients so far. It is also to be noted that apart from a scholar who has done Ph.D on the work and contributions of Prof. Kaula, the world's first "D. Litt" thesis in Library and Information Science has been awarded to a scholar from Utkal University on "P.N. Kaula His works, Contributions and Impact on International Library and Information Field."

AIU NEWS

Our New President

Prof. S. Venkateswaran, Director, Birla Institute of Technology & Science, Pilani has taken over as the President of Association of Indian Universities for the year 2000.

Born on 15th January, 1939 at Madurai he had his education in Tamil Nadu and United States of America. He did his M.Sc. in Mathematics in 1960 from Madras University and followed it up with M.S. (1969) and Ph.D. (1973) in Mathematics from the University of Illinois, Urbana, USA.

A popular teacher, he taught mathematics in the colleges of Madurai from 1961-67, at University of Illinois, Urbana-Champaign, from 1967-1974 and from 1974 onwards at BITS, Pilani.

An enthusiastic seeker of knowledge, he acquired expertise in Management, Systems Engineering, Educational Innovations and Educational Administration through self learning and teaching.

An active educational administrator, he served BITS, Pilani as Dean, Educational Development (1976-87), Dean, Educational Consultancy (1987-88), Dy. Director (1988-89) and Director from July 1989 todate. He has been an Adjunct Professor of Public Health and Tropical Medicine, New Orleans, Louisiana, USA, since July 1993.

Prof. Venkateswaran has been a member of number of organisations and committees like American Mathematical Society, World Council and Assembly on Cooperative Education, Canada, AICTE High Power Committee for Mobilisation of Additional Resources for Higher Education, Indian Association of Social Science Institutions, National Expert Committee — Longowal Institute of Engineering and Technology, National Council of Applied Economic Research, General Assembly of the Indian Council for Cultural Relations etc etc.

Prof. Venkateswaran brings to his new office a wealth of scholarship and vast experience. We welcome Prof. Venkateswaran as our new President and wish him a very fruitful tenure.

News from UGC

Countrywide Classroom Programme

Between 10th January to 16th January, 2000 the following schedule of telecast on higher education through INSAT-1D under the auspices of the University Grants Commission will be observed. The programmes are telecast on the Doordarshan's National Network from 9.30 to 10.00 a.m. every day except on Saturdays & Sundays. These programmes are also telecast on Doordarshan's National Network from 6.00 to 6.30 a.m. on all days of the week.

10.1.2000

"Physics of Music-3"

''प्रगति के माडल-ग्रामीण विकास के नए पहलू''

Bridging the Calories Gap-Weaning Foods"

"Touch of Genius"

11.1.2000

"The Peerless Papaya"

''स्वर्ग रक्षक-हिमालय''

"Adding Pink Tinge to Health Fresh Fruits & Vegetables"

12.1.2000

"Paralysis of Speech Aphasia-3"

''पानी का विकल्प''

"Agriculture-I : Home Grown Food"

"The Gasping"

13.1.2000

"Role Model — The Sanitation Man of Andharmanik"

"Touch of Genius"

"Question Time-91"

"Nadur Hanz — An Aquatic Tribe"

14.1.2000

"Becoming A Confident Student"

''प्रकृति पुत्र : आदिवासी''

"Agriculture-II : Herbs for Health"

"Cataract"

15.1.2000

''शास्त्रीय संगीत के विभिन्न अंग-संतूर के संग-III''

"Repository of Indian Heritage-Rajwada"

16.1.2000

"Dasara on Canvas"

"Preserving History"

INDIAN SCHOOL OF MINES
DHANBAD-826 004

CAREERS IN APPLIED GEOLOGY AND APPLIED GEOPHYSICS

The **Indian School of Mines, Dhanbad,** a centrally-funded premier technology institute in Mining, Mineral and Earth Science is conducting an all India Entrance Examination for its 2-year M.Sc (Applied Geology) and 3 Year M.Sc. Tech (Applied Geology/Applied Geophysics) courses for the session 2000-2001 on May 14th 2000 from 9.30 AM to 1.00 PM at following centres; Calcutta, Chennai, Delhi, Dhanbad and Nagpur.

Application forms and Information Bulletin are available from 4th Jan. to 28th Feb., 2000 from the Assistant Registrar (Academic) ISM, Dhanbad-826004 by sending a Demand Draft of Rs.350/- (Rs.175/-for SC/ST candidates) drawn in favour of the Registrar ISM, Dhanbad, payable at SBI, ISM campus branch (Branch Code 1641), alongwith self addressed unstamped envelop of 25 cm x 12.5 cm size. The last date of the receipt of completed application form in the office of Assistant Registrar (Academic), Indian School of Mines, Dhanbad-826004 is **March 4th 2000.**

BOOK REVIEW

Mechanics for Undergraduates

J.L. Thakkar*

C.P. Shrivastava & Sanjeev Saxena. Mechanics for Undergraduate students of Indian Universities. Bareilly, Prakash Book Depot, 1998. Pp. 554. Rs. 120/-.

From the very beginning, man has been fascinated by the motion of the Moon, Stars, Planets etc. Machanics is probably the oldest of physics and deals with the motion of bodies and bodies at rest in equilibrium. Names of greatest scientist of their times, Newton & Einstein are associated with this branch of physics.

Laws of physics are better understood if expressed in vector notation. Hence it is essential for a student of physics to have knowledge of vectors. The book starts with the introduction of vectors (Chapter I) and deals it, in such a simple manner that even the beginners will have no difficulty in understanding it.

Chapter II deals with Frame of References : Galilean Transformations etc which are prerequisite for special Theory of Relativity (Chapter III) while Non-Relativistic Dynamics of Particles is dealt in Chapter IV.

Potential and Fields — Gravitational as well as Electrical are discussed in Chapter V. Linear and Angular Moments, Rotatory Motion and Concept of Moment of Inertia are parts of Chapter VI and VII respectively.

Detailed mathematical treatment of Harmonic & Forced — Oscillations, including Resonance and LCR circuits is given in Chapter VIII.

The general properties of matter in the solid or liquid phase namely the Elasticity, Viscosity and Surface Tension are described in Chapters IX and X.

Last Chapter contains Fourier's Analysis which is an important mathematical tool and finds its application in Astronomy as well as in many branches of physics.

The subject matter of the present book has been systematically arranged. Care has been taken to make the treatement detailed yet simple, with each step fully explained. Small and simple sentences have been used to avoid the difficulties as regards language. Language problem becomes the main hindrance for some students especially those, who have studied in schools where the medium of teaching is Hindi or some regional language.

A number of typical problems have been solved at the end of each Chapter so that the student will be able to tackle numerical problem with confidence. Some unsolved numericals are also given so that the student may assess his understanding. In short, the book is useful even for those students who are starting the subject from *ab-initio*. Addition of Author-Subject index, some important mathematical relations and a few tables of Physical constants may increase the utility of the book. ❑

SHRI GAJANAN SHIKSHAN SANSTHA'S
SHRI SANT GAJANAN MAHARAJ
COLLEGE OF ENGINEERING
SHEGAON - 444 203 DIST : BULDANA (M.S.)
(APPROVED BY AICTE)

Applications are invited on plain paper with full biodata accompanied by attested certificates of qualifications and experience for the posts of :

Professors / Assistant Professors for:-

1) **Mechanical Engg.**, 2) **Computer Sci. & Engg.**
3) **Electronics Engg.**, 4) **Electrical Engg.**

Qualification : As per AICTE norms.

Retired/about to retire, experienced persons can also apply. The application in the name of **Principal, SSGMCE,** Shegaon should reach **within 30 days** from the date of advertisement.

Chairman **Principal**

Professor, Deptt. of Physics Dr. H.S. Gour University, Sagar-470 003 (M.P.).

THESES OF THE MONTH

A list of doctoral theses accepted by Indian Universities (October-November, 1999)

AGRICULTURAL AND VETERINARY SCIENCES

1. Bhoyar, Sanjay Manikrao. **Effect of fly ash application on micronutrient status of black soil in multiple cropping system.** (Dr D B Matte), Department of Agriculture Science, Dr Panjabrao Deshmukh Krishi Vishwavidyapeeth, Akola.

Plant Pathology

1. Kudada, Narendra. **Management of ring spot virus disease of papaya in Chota Nagpur.** Department of Plant Pathology, Birsa Agricultural University, Ranchi.

2. Prasad, Pankaj. **Ecophysiological aspects of fertilizer application and uptake in some nitrogen fixing tree species during early growth.** (Dr A R Nautiyal), Department of Plant Pathology, Hemwati Nandan Bahuguna Garhwal University, Garhwal.

3. Singh, Jagjeet. **Transmission and management of citrus ring spot virus (CRSV) in Punjab.** Department of Plant Pathology, Punjab Agricultural University, Ludhiana.

Agriculture Chemistry

1. Rewatkar, Shridhar Shankarrao. Investigation on the effect of soil amendments and land treatments on soil characteristics and productivity of cotton grown in salt affected vertisols. (Dr B N Sagare), Department of Agriculture Chemistry, Dr Panjabrao Deshmukh Krishi Vidyapeeth, Akola.

BIOLOGICAL SCIENCES

Botany

1 Augustine, Johns. **Experimental taxonomy and biodiversity on selected bulbophyllum thouspecies of North East India.** (Dr Y Kumar), Department of Botany, North Eastern Hill University, Shillong.

2 Bist, Archana. **Modulatory studies on experimental cervical carcinogenesis in murine model system.** (Prof Jawed Ashraf), Department of Life Sciences, Jawaharlal Nehru University, New Delhi.

3. Danabhai, Mitaliya Kantilal. **Ethnomedicinal study of angiosperms of Bhavnagar.** (Dr D C Bhatt), Department of Botany, Bhavnagar University, Bhavnagar.

4. Latha V N. **Phytochemical studies on hemidesus indicus L and Rouwolfia Canescne L.** (Dr Y N Seetharam), Department of Botany, Gulbarga University, Gulbarga.

5 Rao, B Vishnuvardan. **Studies on ecology and biology of some microfungi from patancheru industrial area of medak, A P India.** (Prof Vasant Rao), Department of Botany, Osmania University, Hyderabad.

6 Sahay, Nirmal Shankar. **Interaction of piriformospora indica with tissue culture raised plant.** (Prof A K Varma), Department of Life Sciences, Jawaharlal Nehru University, New Delhi.

7. Sharda, J. **Studies on the effect of insecticides and fungicides on phyllo-plane, rhizosphere and rhizoplane microflora of hibiscus cannabinus L.** (Dr T Sai Krishna), Department of Botany, Osmania University, Hyderabad.

8. Sinha, Manjusha. **Limnological studies of a natural water body around jaintpur.** (Dr M P Singh), Department of Botany, B R Ambedkar Bihar University, Muzaffarpur.

9 Suresh Kumar G. **Studies on macro and micro fungi of Khammam District Andhra Pradesh India.** (Prof Vasant Rao), Department of Botany, Osmania University, Hyderabad.

Cellular and Molecular Biology

1. Mukherjee, Kakoli. **Initiation of transcription in escherichia coli : The role of the omega subunit.** (Dr Dipankar Chatterji), Jawaharlal Nehru University, New Delhi.

Zoology

1. Roop Kumari. **Studies on the bioconcentration of organechlorine in recticides in environment due to thier use in malaria control in India with special reference to Tarai region of Uttaar Praadesh.** (Dr R K Johari), Department of Zoology, Hemwati Nandan Bahuguna Garhwal University, Garhwal.

2. Singh, Balbir. **Studies on ecology and population dynamics of zooplankton of some sub-tropical ponds of Jammu.** (Prof M K Jyoti and Dr Kuldeep K Sharma), Department of Zoology, University of Jammu, Jammu.

EARTH SYSTEM SCIENCES

Earth Sciences

1. Dash, Sudhir Kumar. **Hydrogeological studies on ground waters in the western part of Sundargarh district Orissa, India.** (Dr H K Sahoo), Department of Earth Science, Sambalpur University, Burla.

Geology

1. Sarbajna, Chanchal. **Geology and Geochemistry of rare metal bearing pegmatites from parts of southern Karnataka, India.** (Dr P Krishnamurthy), Department of Geology, Osmania University, Hyderabad

2. Srinivas H. **Sedimentary facies and depositional environments of vempalle dolomite formation, Ananthapur tadpatri section, cuddapah.** (Prof P Hanmanth), Department of Geology, Osmania University, Hyderabad

3. Srinivas, S. **Mineralogy and Geochemistry of metabasites and charnockites around narsipatnam area in the Eastern Ghats Granulite Belt, India.** (Prof A T Rao), Department of Geology, Andhra University, Waltair.

ENGINEERING SCIENCES

Biotechnology

1. Nayak, Bishnu Prasad **Selection of B cells to a peptide epitope.** (Dr Santosh K Kar), Department of Biotechnology, Jawaharlal Nehru University, New Delhi.

Chemical Engineering

1. Naidu, S V. **A theoretical investigation of natural convection heat transfer from vertical isothermal surfaces and fins through porus media in rectangular and annular enclosures.** (Dr V Dharma Rao and Dr P K Sarma), Department of Chemical Engineering, Andhra University, Waltair.

Civil Engineering

1. Vaidya, Dilip Prabhakar **Computer aided learning package for theory of structures II.** (Dr M M Bosale), Department of Civil Engineering, Nagpur University, Nagpur.

2. Wadegaonkar, Rupal Vishnu. **Some aspects of tapered flocculation in the process of water treatment.** (Prof A G Bhole), Department of Civil Engineering, Nagpur University, Nagpur.

Computer Science

1. Aggarwal, Manica. **Approximation algorithms for the network design problem.** (Dr Huzur Saran), Department of Computer, Indian Institute of Technology, Delhi, New Delhi.

Electrical Engineering

1. Murty, Bhaskar Bhanu. **Development and performance studies on adaptive algorithms for infinite impulse responce digital filters.** (Dr Ganapati Panda), Department of Electronics Engineering, Sambalpur University, Burla.

2. Routray, Aurobinda. **Design of knowledge based controllers for HVDC transmission links and power converters.**

(Dr P K Dash), Department of Electrical Science, Sambalpur University, Burla.

Mechanical Engineering

1. Arora, Vijay. **Setup planning and fixture design for computer aided process planning.** (Prof U R K Rao), Department of Mechanical Engineering, Indian Institute of Technology, Delhi : New Delhi.

Precision Engineering

1. Kohli, Anil Kumar. **Tribological behaviour of some radiation resistant solid lubricants.** (Dr Braham Prakash), Department of Precision Engineering, Indian Institute of Technology : Delhi, New Delhi.

Technology

1. Banerjee, Sharmila. **Optical coherent transient effects in semiconductor quantum well structures and quantum wires.** (Dr P K Sen), Department of Technology, Devi Ahilya Vishwavidyalaya, Indore.

MATHEMATICAL SCIENCES

Mathematics

1. Avashia, Ashima. **The physico mathematical analysis of dynamical behaviour of magnetic fluid.** (Dr D K Vadhu), Deparement of Mathematics, Devi Ahilya Vishwavidyalaya, Indore.

2. Desai, Somashekhar Chandrashekhar **Some studies in fuzzy topological spaces.** (Dr S S Benchalli), Department of Mathematics, Karnatak University, Dharwad.

3. Khujari, Sudershan. **Studies of structures on a differentiable manifolds and of related aspects.** (Dr J P Srivastava), Department of Mathematics, University of Jammu, Jammu.

4 Panda, Satyananda. **Studies on generalised euler's totient function and homomorphism on groups of arithmetic functions.** (Dr I L Shukla), Department of Mathematics, Sambalpur University, Burla.

MEDICAL SCIENCES

Ayurveda

1. Gohil, Kirtidevi S **A clinical study on the management of climacteric stage in women with special reference to menopausal syndrome by using certain ayurvedic formulations.** (Prof Induben Mistry), Department of Ayurveda, Gujarat Ayurved University, Jamnagar.

2. Gupta, Rakhee. **Role of Nyagrodhadi Ghrta and Udumbaradi Ghana - Vati in Vrana ropana.** (Prof Kulwant Singh), Department of Ayurveda, Gujarat Ayurved University, Jamnagar.

Immunology

1. Gupta, Manisha. **Analysis of co-stimulatory signals in T-cell priming.** (Dr Vineeta Bal), Department of Immunology, Jawaharlal Nehru University, New Delhi.

Pharmacy

1. Burade, Vinod Sampatrao. **Involvement of neurosteroids in regulation of some central process and behaviour in rat.** (Dr N K Subhedar), Department of Pharmacy, Nagpur University, Nagpur.

PHYSICAL SCIENCES

Biochemistry

1. Bhagwat, Rajesh. **Some biochemical parameters in health and diseases with special reference to renal diseases.** (Dr S P Joshi), Department of Biochemistry, Devi Ahilya Vishwavidyalaya, Indore.

2. Kale, Manisha. **Antioxidant defense systems in the toxicology of pyrethroid pesticides.** (Dr D Bhatnagar), Department of Biochemistry, Devi Ahilya Vishwavidyalaya, Indore.

Chemistry

1. Abdul Raziq Abdul Hamid Abdul Latif. **Physico chemical studies of bio-chemical systems.** (Dr Bilquis N Waris), Department of Chemistry, Aligarh Muslim University, Aligarh.

2. Ashok Kumar. **Studies on inorganic constituents in snow, ice, melt water and morainal sediments of Chourabari Glacier Kedarnath (U.P.).** (Prof M K Jyoti and Dr Kuldeep K Sharma), Department of Chemistry, University of Jammu, Jammu.

3. Kache Rajashaker. **Studies towards the synthesis of biomolecules : bolanol, a potent PKC inhibitor and pheromonal components of insect aproaerema modicella.** (Dr J S Yadav), Department of Chemistry, Osmania University, Hyderabad.

4. Khan, Azad Ahmad. **Syntheses and characterization of lanthanide thiocyanates and B-diketonate complexes with heterocyclic amines, optical absorption and NMR spectroscopic studies.** (Dr Khalid Iftikhar), Department of Chemistry, Jamia Millia Islamia, New Delhi.

5. Koteshwar, K. **Proteins and enzymes in organic media : Studies in physico-chemical properties and application in organic synthesis.** (Dr N W Fadnavis), Department of Chemistry, Osmania University, Hyderabad.

6. Krishnan, Iyer Parameshwar **Regio and enantioselective catalytic epoxidation of prochiral non-functionalised alkenes using newly synthesised transition metal complexes.** (Dr R I Kureshy), Department of Chemistry, Bhavnagar University, Bhavnagar.

7. Nayak, Mrinal Kanti. **Synthetic studies on organo - sulfur compounds.** (Dr Asit Kumar Chakraborti), Department of Chemistry, University of Burdwan, Burdwan.

8. Pramod, P A. **New defect structures in liquid crystals.** (Prof N V Madhusudana), Department of Chemistry, Jawaharlal Nehru University, New Delhi.

9. Salem, Jamil Kamal J. **Reactions in micellar/ microemulsion systems.** (Prof Kabiruddin), Department of Chemistry, Aligarh Muslim University, Aligarh.

10. Sasmal, Pradeep Kumar. **Studies directed towards the total synthesis of taxol and its analogues.** (Dr J S Yadav), Department of Chemistry, Osmania University, Hyderabad.

11. Sharma, Brijendra Kumar. **Compositional studies on petroleum heavy ends.** (Dr S B Bhagat), Department of Chemistry, Hemwati Nandan Bahuguna Garhwal University, Garhwal.

12. Verma, Kanak Lata. **Development of anticorrosive epoxy based coatings on fe-and al-alloys.** (Dr Fehmida Naqvi and Dr Sharif Ahmad), Department of Chemistry, Jamia Millia Islamia, New Delhi

Physics

1. Ashoka, V S. **Study of electro-magnetic field induced transparency in YGate systems and their variants.** (Prof S P Tewari), Department of Physics, University of Hyderabad, Hyderabad.

2. Bisht, Vijay Singh. **Studies of relaxation processes and ultrasonic attenuation in KDP-type ferroelectrics.** (Dr N S Panwar), Department of Physics, Hemwati Nandan Bahuguna Garhwal University, Garhwal.

3. Fadnvis, Silpa Anil. **Effect of rare earth doping on growth and ferroelectric behaviour of lead germanate single crystal.** (Dr A G Katpatal), Department of Physics, Nagpur University, Nagpur.

4. Jain, Alok. **Investigations of optical and transport properties of porous silicon.** (Prof K P Jain and Dr R K Jain), Department of Physics, Indian Institute of Technology, Delhi, New Delhi.

5. Mishra, Shyam Jee. **Some study of elementary excitations in liquid, 3He.** (Dr L K Mishra), Department of Physics, Magadh University, Bodh Gaya.

6. Sharma, Desh Bandhu. **Fabrication and characterisation of mercury cadmium telluride mis (metal-insulator-semiconductor) structure.** (Dr Preeti Kashyap), Department of Physics, University of Jammu, Jammu.

7. Singh, Bir. **A systematic study of the breaking of 0(6) dynamical symmetry in IBM.** (Dr P K Chattopadhyay), Department of Physical Science, Maharshi Dayanand University, Rohtak.

CLASSIFIED ADVERTISEMENTS

INDIAN COUNCIL OF MEDICAL RESEARCH

Applications are invited upto 15th February 2000 for filling up the post of Research Officer (Medical) (unreserved) (one post) in the scale of pay Rs. 8000-275-13500 at Regional Medical Research Centre for Tribals, Jabalpur.

Research Officer (Medical) (unreserved) (one post)

Qualification & Experience : Essential : M.B.B.S.

Desirable : (a) M.D. in Community Medicine/General Medicine/Paediatrics. (b) 3 years research/teaching experience related to morbidity surveys in tribal areas especially related to diseases prevalent in tribals of Madhya Pradesh or M.D. in Community Medicine/General Medicine/Paediatrics with atleast 1 year post-doctoral research/teaching experience in epidemiology of communicable diseases and other morbidity of tribals.

Job Requirements : To participate in organizing/conducting and reporting results of morbidity surveys in tribal areas Job requires apart from relevant laboratory work, extensive touring in tribal areas.

Age : Below 45 years. SC/ST/departmental candidates are allowed relaxation in accordance with Central Govt. Rules in force.

Benefits of pension admissible. Private practice is not allowed. However, NPA as per rules of the Council is admissible to medical graduates only.

Application forms and other information can be obtained from the office of the Director, Regional Medical Research Centre for Tribals, RMRC Complex, Nagpur Road, P.O. Garha, Jabalpur, and forms duly completed alongwith copies of degree certificates/testimonials etc should be sent to the Director's Office on the same address alongwith crossed IPO for Rs. 8/- payable to the Director, RMRC for Tribals, Jabalpur (SC/ST and departmental candidates are exempted from this payment). Incomplete application will not be entertained.

Any canvassing by or on behalf of the candidates or to bring political or other outside influence with regard to selection/recruitment shall be considered as disqualification.

DIRECTOR

C.E.S. COLLEGE OF ARTS & COMMERCE

CUNCOLIM-SALCETE-GOA-403 703

Applications are invited for the post of **Principal** of C.E.S. College of Arts and Commerce, Cuncolim, Salcete, Goa-403 703.

(A) MINIMUM QUALIFICATION

1) The applicant should be an approved teacher in a college or University, with contributions to educational innovitions, design of new courses and curriculae.

2) a) He/she should have good academic record with Ph.D. degree or an equivalent published work and at least 08 years of teaching experience at the level of Lecturer, as above, in a College or University.

OR

b) Good academic record with M.Phil degree and at least 10 (Ten) years of teaching experience at the level of Lecturer, or above, in a College or University.

(B) SCALE OF PAY :

Scale of pay and allowances will be prescribed by the Goa University and other competent authorities.

(C) DESIRABLE QUALIFICATIONS :

The candidates having LL.B. degree in addition to the above qualification shall be preferred.

(D) DATE OF JOINING : March 15, 2000

(E) Applications stating full name, address, date of birth, educational qualifications, teaching and administrative experience, research papers published, list of papers presented/read in Seminar/Conferences, cocurricular and extra curricular activities participated and conducted alongwith certified copies of statement of marks at all the University examination from S.S.C. onwards and experience certificate should reach the undersigned within 20 (Twenty) days from the date of publication of this advertisement.

(F) Applicant should :

a) Send the application through proper channel.

b) Account for breaks, if any, in the academic career or services.

Place : Cuncolim **(Adv. Pio F. Lawrence)**
Date : 15/01/2000 **CHAIRMAN**

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ANNOUNCES ADMISSION TO THE FOLLOWING ACADEMIC PROGRAMMES - 2000-2002

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The tests and interviews will be held in June 2000 at the Institute only. For further details please refer full advertisement appeared in this weekly dated 13th Dec. 99 or refer the Employment News dated 18th Dec. 99 or write to the **Assistant Registrar (Academic)** or contact on Tel.: 5563289 to 96. Ext. 261. Fax: 22-556 2912.

NEW ACADEMIC SESSION COMMENCES ON JUNE 26, 2000.

Mumbai, 2.1.2000

Dr. S.K. Bandyopadhyay,
REGISTRAR

Calendar of Events

Proposed Dates of the Event	Title	Objective	Name of the Organising Department	Name of the Organising Secretary / Officer to be contacted
Jan. 20-22 2000	National Seminar on CALL (Computer Assisted Language Learning)	To give a view of the uses of computer in Language Teaching Chennai-600025	Deptt. of Humanities & Social Sciences, Anna University,	Dr D Gnanasambandan Organiser, National Seminar on CALL A C. Tech. Campus Anna University Chennai-600025 Ph. 044-2351126, 2352312
Jan 27-29 2000	National Seminar on Developmental Communication — Issues & Challenges	Helping those engaged in development work to plan effective communication strategies	Deptt of Home Science Extension & Communication, MS University of Baroda	Dr Uma Joshi Deptt. of Home Science Extension, Faculty of Home Science, MS University, Baroda Vadodara-390 002
Feb 10-12 2000	National Seminar on CALL (Computer Assisted Language Learning)	To sensitise participants to CALL activities	Dept of Humanities & Social Sciences, Anna University	Dr. D. Gnanasambandan Convenor, National Seminar on CALL, A.C.T Campus, Anna University, Chennai-600025
Feb 12-13 2000	All India Homoeopathic Teachers' Seminar	To improve the receptivity of knowledge and skills in Homoeopathy	The Homoeopathic Medical Association, Karnataka State Branch-Teachers' Wing	Dr. Munir Ahmed R. Organising Secretary AIHTS-2000 403, 38th A Cross, 26th Main, 9th Block Jayanagar, Bangalore-560 069 E-mail aihts 2000@hotmail com
Feb.16-18 2000	Information Services in a Networked Environmental in India	To identify and organise the useful information resources required for providing services using networks	Information and Library Network Centre (INFLIBNET) and Univ of Madras Chennai	Dr T.S. Kumbar Convenor, CALIBER-2000, INFLIBNET Centre, PB No 4116, Opp University Guest House, Navrangpura, Ahmedabad- 380009 Ph (O) 079 6305971 (R) 6733537 Fax. 6300990
Feb 22-24 2000	International Conference on Higher Education for Human Development	To exchange views on issues likely to impact human development in the next century	Association of Indian Universities, New Delhi	Dr. Veena Bhalla Association of Indian Universities, AIU House, 16 Kotla Marg, New Delhi-110 002
Mar. 01-04 2000	International Conference on Lasers and their Applications (INCOLA-2000)	To focus on new developments in spectorscopy and lasers and their applications	Dept of Physics St Joseph's College Tiruchirappalli (Tamil Nadu)	Dr A. Savarinandam Convenor, INCOLA-2000 Dept. of Physics, St. Joseph's College Tiruchirappali-620 002
April 27-29 2000	IGNOU-IDEA Conference on 'Reaching the Unreached through Open and Distance Learning'	To help, promote, strengthen, and continue the commitment to the Distance Education	Indian Distance Education Association	Dr. Neela Jagannathan Convenor IDEA Conference Lib. & Documentation Division, IGNOU Ph : 011-6962792 Fax · 91-11-6524229

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